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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,031	09/14/2006	Takao Nomura	P29946	1877
7055 7590 10/23/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER GORMAN, DARREN W	
			ART UNIT 3752	PAPER NUMBER
			NOTIFICATION DATE 10/23/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/596,031

Applicant(s)

NOMURA ET AL.

Examiner

Darren W. Gorman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2006, including preliminary amend.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/25/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The IDS filed on August 25, 2006 is hereby acknowledged and has been placed of record. Please find attached a signed and initialed copy of the PTO 1449.

Drawings

2. According to what is disclosed in the specification, Figures 4 and 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Abstract

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it is in a two-paragraph format.

Further, it is not understood what is meant by the "---" found twice in the second paragraph of the abstract after reference number "5".

Correction is required. See MPEP § 608.01(b).

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

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(I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

5. The disclosure is objected to because of the following informalities:

- The layout of the specification generally does not follow the preferred layout as per 37 CFR 1.77(b). Applicant should review the instant specification and amend accordingly.
- Throughout the specification, "---" is found just after reference to nozzle holes 5. It is not understood what the "---" is referring to.

Appropriate correction is required.

Minor Claim Suggestions By Examiner

6. The following change(s) are recommended to improve clarity of the claims. The claims have been examined on the merits including the suggested changes below.

- In claim 1, on line 6, "the", first occurrence, should be deleted.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, line 3 recites, "nozzles holes" (i.e. plural), however line 6 recites, "the

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nozzle hole” (i.e. singular). Clarification from Applicant is requested.

Regarding claim 2, the recitations, “the tubular member”, “the tubular wall”, and “the end of the high pressure region”, lack antecedent basis. Further, with respect to the “nozzle holes” recitation on line 3, it is unclear if this recitation is referring to the same “nozzle holes” of claim 1, or if this is reciting additional nozzle holes. Also, the recitation, “the end of the high pressure region thereof is formed to the cleaning fluid communication port” is unclear. The Examiner cannot determine what this recitation means and requests clarification of this recitation.

Regarding claim 4, the recitation, “the clearance” lacks antecedent basis. Further, a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by “such as” and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 3 recites the broad recitation “from 0 to 50 um”, and the claim also recites “and, more preferably, from 0 to 15um”, which is the narrower statement of the range/limitation.

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Regarding claim 5, the recitations, “the tubular member”, “the end of the high pressure region”, and “the gap”, lack antecedent basis. Further, the recitation, “the end of the high pressure region is formed to the cleaning fluid communication port” is unclear. The Examiner cannot determine what this recitation means and requests clarification of this recitation. Also, the recitation, “and the gap between the valve body and the tubular member forms a nozzle hole” is unclear in view of the recitations of claim 1. Claim 1 recites “nozzle holes” (i.e. plural), and claim 5 recites that this “gap” forms “a nozzle hole” (i.e. singular). Again, clarification from Applicant is requested.

Regarding claim 6, the recitation, “the top end of the valve body” lacks antecedent basis. Further, the recitation, “is formed to the low pressure region of the tubular member” is unclear. The Examiner cannot determine what this recitation means and requests clarification of this recitation.

Regarding claim 7, the recitation, “the top end of the valve body” lacks antecedent basis. Further, the recitation, “is formed to the low pressure region of the tubular member” is unclear. The Examiner cannot determine what this recitation means and requests clarification of this recitation.

Regarding claim 8, the recitation, “the top end of the valve body” lacks antecedent basis. Further, the recitation, “is formed to the low pressure region of the tubular member” is unclear. The Examiner cannot determine what this recitation means and requests clarification of this recitation.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ku et al., USPN 6,652,624.

As well as Applicant's claims are understood by the Examiner, Ku shows a jet dispersing device (see Figures 2, 4A and 4B) having a tubular (see column 5, lines 57-58) partition wall (28), which partitions a high pressure region (30) having a flow inlet (32) and a low pressure region (52) having a flow outlet (34). Further, in as much as Applicant's embodiment of Figures 3a-3c includes "nozzle holes", Ku shows nozzle holes (annular gap region between valve rod 46 and the inner portion of the upstream end of flow outlet 34) for jetting a liquid from the high pressure region to the low pressure region and dispersing the same as fine particles, wherein when a valve mechanism (46, 48) comprising a rod (46) opens as shown in Figure 4B, a cleaning fluid communication port (enlargement of outlet 34) is formed in the partition wall.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ku et al.

Ku shows all of the recited limitations as set forth in claim 3, however Ku is silent as to a specific clearance measurement between the valve body and the tubular partition wall. It should be noted, one having ordinary skill in the art would recognize that determining the optimal clearance between the valve body and wall of Ku would be dependent on the expected size of particles which may become lodged in the clearance, as well as the desired size of the droplets and/or desired spray pattern of the liquid being dispersed from the nozzle. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the clearance between the valve body and wall of Ku between 0 to 15 um, if such a size is discovered to be the optimal size range for proper functioning of the nozzle, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darren W. Gorman whose telephone number is 571-272-4901. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on 571-272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Darren W Gorman
Examiner
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DWG
October 18, 2007